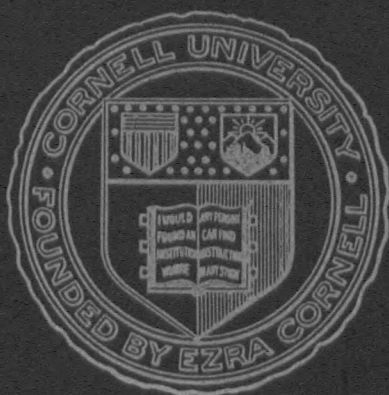


THE INSTITUTE REPORT



From the
VETERINARY VIRUS RESEARCH INSTITUTE
Cornell University, Ithaca, New York

September, 1969

Volume 19

THE INSTITUTE REPORT



From the
CORNELL RESEARCH LABORATORY
FOR DISEASES OF DOGS
Cornell University, Ithaca, New York

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MESSAGE FROM THE DIRECTOR

LIBRARY

IN order that a research laboratory may produce reliable, worthwhile information, a number of requirements must be met. Progress during this past year in providing for such needs will be discussed in this annual report to those who support the Institute. Because many of you have not been able as yet to visit the Institute, a large number of pictures are included in this year's report.

Buildings and Equipment. In the Institute Report last year, completion of new laboratories was announced. During the past year of occupation, these laboratories have been highly successful, and new instruments have allowed the quality of work to be improved.

At the time the Institute began, unique isolation facilities were built to prevent spread of infection, but laboratory techniques were comparatively simple and did not demand complex machines, other than microscopes, balances, centrifuges, incubators, boxes for dry ice, and usual laboratory facilities. Rapid development of electronic equipment and use of isotopes have affected modern research programs, which now must provide expensive technical equipment as well as the skills required for their operation.

Our new building has permitted the addition of a biochemical laboratory, which is considered fundamental for cell studies. Cells are the basic functional units of the body and specialized equipment and trained laboratory workers are necessary for their study. General health depends upon the normal function of cells of every organ. While we study the dog as a whole and functions of the various organs, such as the liver and lung, we also must study individual cells that make up each organ.

Drs. Leland E. Carmichael, James A. Baker, and Hadley C. Stephenson in an informal discussion. In the background is the original building of the Cornell Research Laboratory for Diseases of Dogs.

Research Problems. Both acute and chronic diseases may result from infectious organisms. Some of these conditions are being studied at the Institute, with especial attention being paid to abortion or death of newborn animals, to the respiratory disease commonly called "kennel cough," and to the possible relationship of persistence of virus to kidney dysfunction in older dogs.

When work began originally at the Cornell Research Laboratory for Diseases of Dogs, dogs were known to be infected by only three viruses, distemper, infectious canine hepatitis—which still was imperfectly understood at that time, and rabies; now seven different viruses are recognized in dogs. With the exception of rabies, primarily a public health problem, each of the other six viruses found in dogs is being studied, as shown in the table on opposite page.

Measurements and assessments are being made of various nutritional factors that can enhance ability to resist disease by more rapid and effective production of antibodies.

Important basic studies are being made on cells which transmit antigenic messages and cause antibodies to be produced, and of the exact numbers of days required before protection can be assured.



Hip dysplasia is a developmental disease. There is need for analysis of early biochemical changes that result in later malarticulation and arthritic debilitation. The rate of protein biosynthesis, markedly reduced during dysplasia, now can be measured.

RESEARCH WORK IN PROGRESS

*Causes of Disease**Studies Being Made at Cornell Research
Laboratory for Diseases of Dogs**Viruses:*

- | | |
|--------------------------------|--|
| 1. Canine Distemper | Progress of disease through cells of various organs and tissues. Heterotypic measles vaccine for protection. |
| 2. Infectious canine hepatitis | Persistence of ICH virus in relationship to chronic kidney disease |
| 3. Herpesvirus | Prevention of death in newborn puppies |
| 4. SV5 | |
| 5. Adenovirus AV26 | Relationship to kennel cough |
| 6. Reovirus | |

*Bacteria:**Bordetella bronchoseptica**Mycoplasma**Brucella canis*

Possible role in kennel cough
Studies for an effective bacterin and prevention of abortion

Protozoa:

Coccidiosis

Important as a disease of dogs, studied in possible relationship to distemper

Parasites:

Heartworm

Prevention and treatment

Nutrition:

Folic acid

Pantothenic Acid

Vitamin C

Relationship to the immune response by effect on ability to produce antibodies

Biochemistry:

Protein synthesis

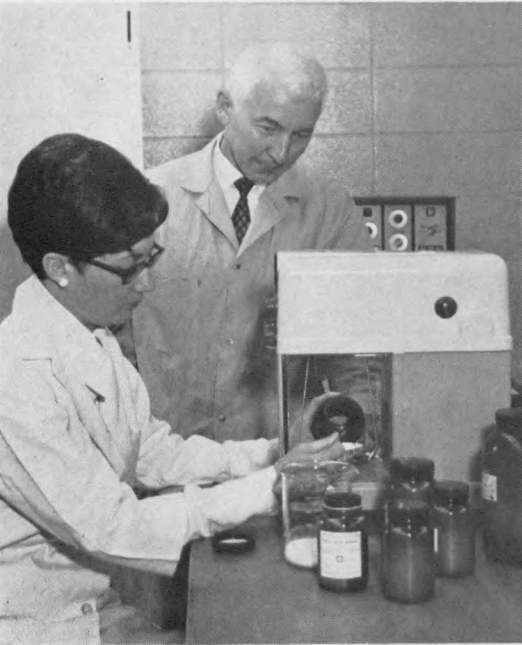
Hip dysplasia
Collagen studies

Environment:

Prevention of chilling
of newborn

Controlled heat by use of methods such as puppy incubator

Methods of Work. If enough people with proper training and facilities can work on them, nearly all disease problems could be solved eventually. The scientific personnel should be trained in virology, bacteriology, parasitology, nutrition, biochemistry, genetics, or veterinary medicine. Some diseases may be caused by visible or invisible biological parasites, while other abnormal conditions may result from inadequate nutrition or be genetic in origin.



Dr. Ben Sheffy and Miss Susan Rodman preparing purified diets for nutritional studies concerning production of antibodies.



Miss Marilyn Menegus fractionating virus in DEAE cellulose column, in studies of infectious canine hepatitis.

Spread of Knowledge. Once scientific information is developed and tested, it should be spread as rapidly as possible by publication in professional journals for the use of other workers, as well as in magazines or books that reach dog owners directly. Many journals are running nearly two years behind in publication of current articles.

Personal communication still is the most rapid means for effectively spreading and receiving information. Laboratory workers, however, cannot make too many talks away from the Institute in any given year or their research problems will suffer. On the other hand, conversation at meetings always stimulates important new ideas. Last year, various members of the Institute staff gave a total of 27 talks at dog and breed clubs, at national meetings of the USLSA and AVMA, at the International Veterinary Congress in London, at state veterinary meetings, and at seminars or symposia held in a number of medical schools, veterinary colleges, and biological and governmental institutions. A number of visitors to the Institute from the United States and abroad helped in the exchange of ideas, some by informal discussions and others by seminars.



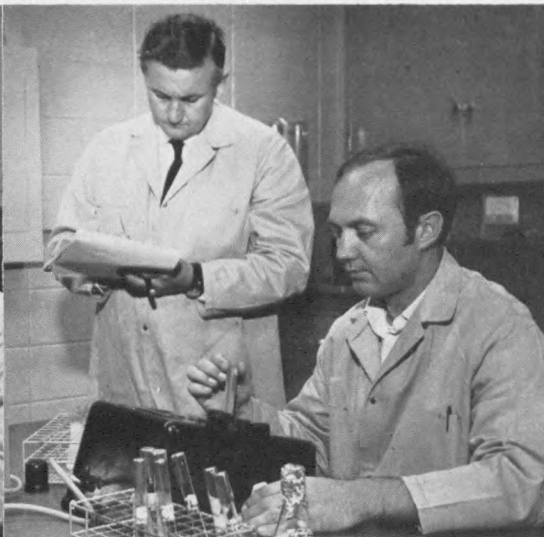
Dr. Hadley C. Stephenson having a discussion in the Institute Library.



Mrs. Jeanna Storm and Dr. James A. Baker shown in the office of the new building.



Dr. Carmichael shown with Mrs. Frances Barnes determining effects of viruses upon cells grown in tissue culture.



Drs. Carmichael and Philip A. Pickerill preparing antigen to test for canine brucellosis.

PROMOTION ANNOUNCED

Effective July 1, 1969, Dr. Leland E. Carmichael was appointed to full professorial rank on the faculty of Cornell. Dr. Carmichael received the A.B. and D.V.M. degrees from the University of California and the Ph.D. degree from Cornell in 1959. In 1963 he was appointed the first John M. Olin Professor of Virology, which position he still holds. In addition to teaching courses in pathogenic bacteriology, in recent years Dr. Carmichael has isolated *Brucella canis* and herpesvirus, two of the organisms responsible for abortion or death of newborn puppies, and has studied these conditions intensively.

IN APPRECIATION

For their exceptional interest in the Institute, we should like to express appreciation to the following supporters: Mrs. Priscilla Maxwell Endicott, Mr. James A. Moffett, Mrs. Ann W. Olin, Mr. John M. Olin, Mr. Spencer T. Olin, and Mrs. Erma F. Rothhaus. General Richard King Mellon recently has provided funds for an electron microscope, which we hope to have in use within a short time.

Upon recommendations of Mr. Al Dick, President, and Mr. John Lafore, Executive Vice-President, and the Research Committee of the American Kennel Club, a special grant was obtained for operation of the Distemper Evaluation Laboratory. This has enabled us to secure the services of Dr. Alexander Zeissig, formerly Director of the Diagnostic Laboratory of the New York State Veterinary College. Dr. Zeissig is noted for his work in serology.

Also, we would like to thank the following for their interest and continued support over many years: Mr. and Mrs. Andrew G. Carey, Mr. and Mrs. Gaylord Donnelley, Dr. Joseph B. Engle, Miss Gladys Freeman, Dr. Laurence W. Goodman, Sr., Dr. Kenneth I. Gumaer, Mr. and Mrs. E. Roland Harriman, Mr. Carl Holmes, Mrs. Dorothy B. Howe, Mrs. William K. Long, Jr., Dr. John L. McAuliff, Mr. and Mrs. Edward J. McConnille, Dr. Arthur F. North, Jr., Miss Margaret K. Quarrie, Mrs. Esther duPont Thouron, and Mrs. Vincent F. Wilcox.

A number of clubs have made special effort to increase their support. We are appreciative of this help.

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(These doctors of veterinary medicine, physicians, and scientists in various parts of the United States are contributing much time and effort, without compensation, in order to help secure necessary information on which to base programs for control of infectious diseases.)

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FRANK SEARS, Building Maintenance Supervisor.

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- F. JERRY VOLENEC, B.S., University of Nebraska. Research Assistant. (Received Ph.D., Cornell, Feb., 1969. Now at Jensen-Salsbury Laboratories, Kansas City.)
- ELIZABETH WHEELER, Laboratory Assistant.
- CARL W. YOST, B.S., Syracuse University. Laboratory Technician.

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ACKNOWLEDGMENTS

The Cornell Research Laboratory for Diseases of Dogs gratefully acknowledges the gifts received from our contributors from September 1, 1968 to September 1, 1969 in support of our research program.

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Dr. James A. House inspects plate-cultured virus to determine effectiveness of anti-viral substances.

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*Mrs. Sondra Burda with flasks and
tubes of tissue cultured virus.*

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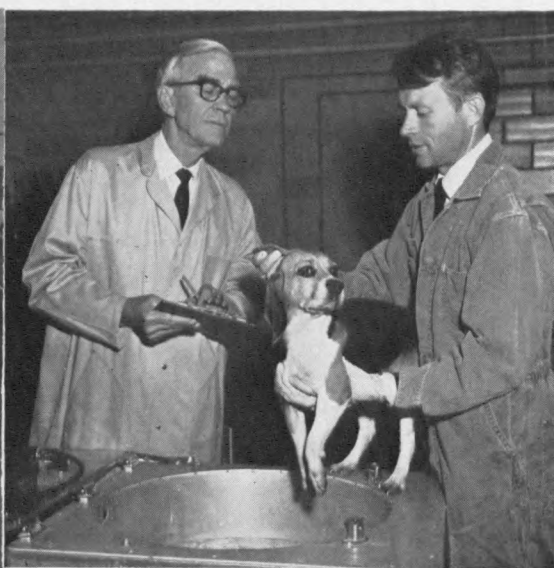
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*Mrs. Jean Joubert and Dr. Helen Lee examining slides for studies of *Coccidia*.*



Beagle, successfully protected against distemper, being checked by Dr. James A. Baker and Dr. Max Appel.

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